

Responses to Stress: Exploring The Relationship Between Stress Response, Coping Style, and Risky Behavior



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Introduction

Risky-Behavior

- The decision-making behind risky behaviors can be influenced by many factors. During adolescence, cognitive changes, including the development of judgment, impulse control, planning, and emotion regulation abilities contribute to the development of decision-making skills (Broderick & Jennings, 2012). Additionally, environmental changes include an increased susceptibility to social and emotional environments, which in turn can influence the factors relevant to decision-making (Broderick & Jennings, 2012).
- Adolescents have been demonstrated to be more risk-prone, both in real-life risky behavior and in their propensity towards risk-taking, than adults (Dahl, 2004; Cauffman et al., 2010)

Stress

- The perception of stress increases during adolescence, as does stress response, suggesting that adolescents may be more vulnerable and reactive to stress (Dahl & Gunnar, 2009).
- Adolescents report increased levels of stress compared to other generations, with Gen Z reporting a 6.1/10, as opposed to the 5.6 of millennials and 5.2 of Gen X (*Stress in America 2020, 2020*).
- Academics provide an additional environmental stressor, with 87% of college students reporting that academics are a primary source of stress (*Stress in America 2020, 2020*). Furthermore, the risk of depression increases by 2.4x when experiencing academic stress (Jayanthi et al., 2015).

Coping

- Coping consists of the behaviors utilized to reduce negative thoughts, feelings, and emotions. Our study grouped the styles into Avoidant, Emotional, and Problem-Focused.
- When utilized adaptively, coping can contribute to increased overall resilience, and decreased stress (Ali et al., 2010; Kemeny, 2003). However, when utilized in maladaptive ways, such as with avoidant coping, it can contribute to increased risk-taking (Khodarahimi & Fathi, 2016).

Purpose

- The purpose of this study is to examine the relationship between stress response, coping styles, and risky behavior to determine how these variables may contribute to risky behavior

Hypotheses

- Individuals who are more reactive to stress will also be more prone to engaging in risky behaviors
- Individuals who utilize more avoidant coping styles will be more prone to engaging in risky behaviors
- Individuals who reported greater perceived stress will also be more prone to risky behavior

Materials & Methods

Participants

- There were 12 participants in total, ranging from 18 to 23 years of age. The demographic makeup of the subject pool was 50% Asian and 83.33% Female. All participants were college students and were screened to exclude any DSM-5 psychotic, mood, anxiety, or obsessive-compulsive disorders.

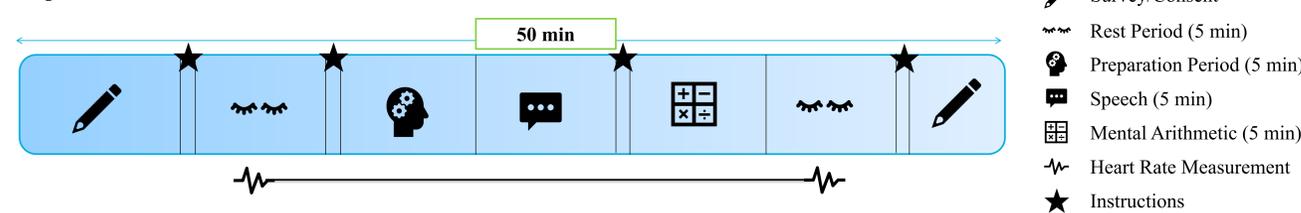
Self-Report Measures (Surveys)

- Perceived Stress Scale
- State, Trait Anxiety Interval
- Youth Risk Index
- Risky Impulsive & Self-Destructive Questionnaire
- Brief COPE

Stress Induction

- To induce stress, participants participated in a Trier Social Stress Test (TSST), which included 5-minute speech and 5-minute mental arithmetic portions. All portions which included a panel consisted of a hybrid virtual and in-person panel.
- Heart rate measurements were taken continuously throughout the Trier Social Stress Test.
- The heart rate data was analyzed to observe the percent change in respiratory sinus arrhythmia (RSA) from baseline.

Experimental Procedures



Results

H1. Individuals who had greater stress response were not correlated with increased risky behavior

H3. Individuals who had more perceived stress were not correlated with increased risky behavior

Secondary Analyses:

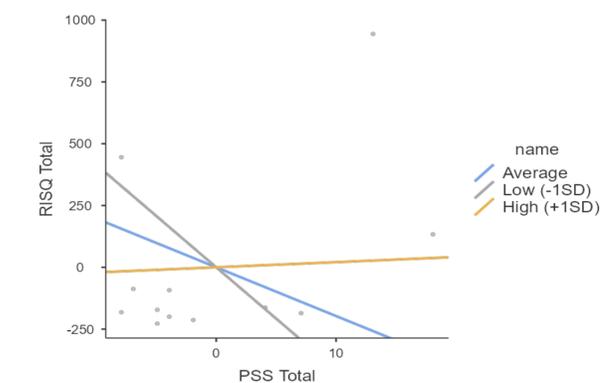


Figure 1. Moderation Analysis of Avoidant Coping on Relationship Between Perceived Stress Scale Scores and Risky, Impulsive, Self-Destructive Questionnaire Scores ($p = 0.001$, $Z = 3.29$)

Table 1. Correlation matrix results for associations between stress, anxiety, and coping styles.

	PSS Total	Problem Focused	Emotional	Avoidant	STAI	STAI-T
PSS Total	Pearson's r — p-value —					
Problem Focused	Pearson's r 0.362 p-value 0.248	—				
Emotional	Pearson's r 0.591* p-value 0.043	0.521	—			
Avoidant	Pearson's r 0.740** p-value 0.006	0.600*	0.665*	—		
STAI	Pearson's r 0.945*** p-value <.001	0.258	0.578*	0.751**	—	
STAI-T	Pearson's r 0.874*** p-value <.001	0.217	0.549	0.736**	0.973***	—
STAI-S	Pearson's r 0.966*** p-value <.001	0.498	0.065	0.006	<.001	<.001

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

H2: Individuals who engage more in avoidant coping behaviors (Brief COPE) also engage in more risky behaviors (RISQ) ($p=0.002$, $r=0.788$).

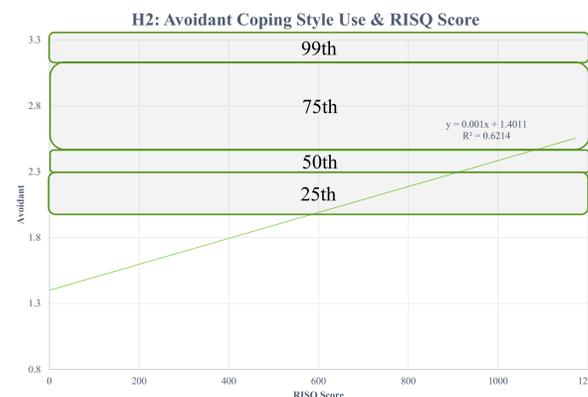


Figure 2. Scatterplot of Relationship Between Avoidant Coping Style Scores and Risky, Impulsive, and Self-Destructive Questionnaire Scores.

Table 2. Correlation Matrix Results For Associations Between Coping Styles and Drug, Alcohol, and Reckless Behaviors

	Avoidant	Emotional	Problem Focused	Drug	Heavy Alcohol
Avoidant	Pearson's r — p-value —				
Emotional	Pearson's r 0.665* p-value 0.018	—			
Problem Focused	Pearson's r 0.600* p-value 0.039	0.521	—		
Drug	Pearson's r 0.788** p-value 0.002	0.277	0.471	—	
Heavy Alcohol	Pearson's r 0.620* p-value 0.031	0.342	0.478	0.880***	—
Reckless	Pearson's r 0.626* p-value 0.029	0.383	0.146	0.670*	0.515

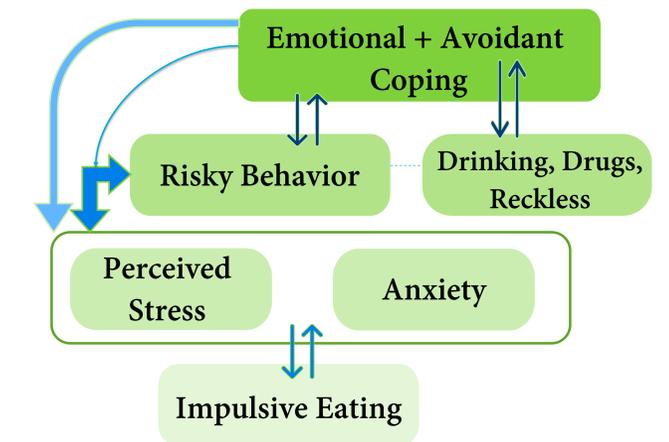
Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. Correlation Matrix Results For Associations Between Risky Behaviors, Perceived Stress (PSS), and Anxiety (STAI) Scores

	Drug Behavior	Aggression	Gambling	Risky Sexual Behavior	Heavy Alcohol Use	Self-Harm	Impulsive Eating	Reckless Behavior
PSS Total	Pearson's r 0.416 p-value 0.179	0.289	0.310	0.009	0.449	0.368	0.624*	0.197
STAI-S Total	Pearson's r 0.325 p-value 0.303	-0.349	-0.287	-0.078	0.345	-0.334	0.601*	0.180
STAI-T Total	Pearson's r 0.456 p-value 0.137	-0.147	-0.374	-0.069	0.369	-0.137	0.532	0.146
STAI Total	Pearson's r 0.407 p-value 0.189	-0.249	-0.344	-0.076	0.369	-0.236	0.582*	0.167

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Conclusion



Ultimately, it was discovered that there is a significant relationship between specific coping styles and stress, as well as between specific coping styles and risky behaviors.

- Those who utilized more emotional and avoidant coping styles were also at higher risk and engaged more in risky behavior. Additionally, those individuals had greater perceived stress and anxiety.
- Those who had greater perceived stress and utilized avoidant coping skills engaged more in risky behavior.
- Those who utilized more avoidant coping styles engaged more in drinking, drugs, and reckless behavior.
- Those with higher perceived stress and anxiety engaged more in impulsive eating.

Recommendations

Replication:

- An important focus of replication is addressing the small sample size of the study. I recommend shifting parts of the study to be virtual, thus participants can spend less time in the lab, as well as more chances for compensation or smaller quantities of compensation for all participants.
- Additionally, although the Trier Social Stress Test appeared to be effective with a hybrid panel, I suggest utilizing an in-person panel.

Future Research:

- Moving forward, it will be valuable to understand how specific risky behaviors and coping styles interact, including the directionality of the relationship. This is also the case for perceived stress and risky behaviors, as well as coping styles. This is to help understand how certain behaviors are influenced, and thus potentially provide insight into how coping styles can be used for preventative measures against risky behavior.

Acknowledgments + References

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Ali, M. M., Dwyer, D. S., Vannet, E. A., & Lopez, A. (2010). Adolescent Propensity to Engage in Health Risky Behaviors: The Role of Individual Resilience. *International Journal of Environmental Research and Public Health*, 7(5), Article 5. <https://doi.org/10.3390/ijerph7052161>

Broderick, P. C., & Jennings, P. A. (2012). Mindfulness for adolescents: A promising approach to supporting emotion regulation and preventing risky behavior. *New Directions for Youth Development*, 2012(136), 111–126. <https://doi.org/10.1002/yd.20042>

Cauffman, E., Shulman, E. P., Steinberg, L., Claus, E., Danich, M. T., Graham, S., & Woolard, J. (2010). Age differences in affective decision making as indexed by performance on the Iowa Gambling Task. *Developmental Psychology*, 46(1), 193–207. <https://doi.org/10.1037/a0016128>

Dahl, R. E. (2004). Adolescent brain development: A period of vulnerabilities and opportunities. Keynote address. *Annals of the New York Academy of Sciences*, 1021, 1–22. <https://doi.org/10.1196/annals.1308.001>

Dahl, R. E., & Gunnar, M. R. (2009). Heightened stress responsiveness and emotional reactivity during pubertal maturation: Implications for psychopathology. *Development and Psychopathology*, 21(1), 1–6. <https://doi.org/10.1017/S0954579409000017>

Jayanthi, P., Thirunavukarasu, M., & Rajkumar, R. (2015). Academic stress and depression among adolescents: A cross-sectional study. *Indian Pediatrics*, 52(3), 217–219. <https://doi.org/10.1007/s13224-015-0609-z>

Kemeny, M. E. (2003). The Psychology of Stress. *Current Directions in Psychological Science*, 12(4), 124–129. <https://doi.org/10.1111/1467-8721.01246>

Khodarahimi, S., & Fathi, R. (2016). Mental health, coping styles, and risk-taking behaviors in young adults. *Journal of Forensic Psychology Practice*, 16(4), 287–303. <https://doi.org/10.1890/1522-8932.2016.16.196101>

Stress in America™ 2020: A National Mental Health Crisis. (2020). <https://www.apa.org/news/press/releases/stress/2020-report-october>